

SEQUENCE LISTING

<110> Hoechst Marion Roussel

<120> MATURE PROTEIN HAVING ANTAGONIST ACTIVITY AGAINST BONE
MORPHOGENETIC PROTEIN.

<130> JH98K011 PCT SEQUENCES IN ENGLISH

<140>

<141>

<150> 10-288103

<151> 1998-10-09

<160> 7

<170> PatentIn Ver. 2.1

<210> 1

<211> 119

<212> PRT

<213> Human

<220>

<221> CHAIN

<222> (1)..(119)

<223> Mature MP52

<300>

<301> MAKISHIMA, Fusoa

TAKAMATSU, Hiroyuki

MIKI, Hideo

KAWAI, Shinji

KIMURA, Michio

MATSUMOTO, Tomoaki

KATSUURA, Mieko

ENOMOTO, Koichi

SATO, Yusuke

<302> Novel protein and process for producing the same.

<310> WO 96/33215

<312> 1996-10-24

<313> 1 TO 119

<400> 1

Pro Ser Ala Thr Arg Gln Gly Lys Arg Pro Ser Lys Asn Leu Lys Ala

1 5 10 15

Arg Cys Ser Arg Lys Ala Leu His Val Asn Phe Lys Asp Met Gly Trp

20 25 30

Asp Asp Trp Ile Ile Ala Pro Leu Glu Tyr Glu Ala Phe His Cys Glu

35 40 45

Gly Leu Cys Glu Phe Pro Leu Arg Ser His Leu Glu Pro Thr Asn His

50 55 60

Ala Val Ile Gln Thr Leu Met Asn Ser Met Asp Pro Glu Ser Thr Pro

65 70 75 80

Pro Thr Cys Cys Val Pro Thr Arg Leu Ser Pro Ile Ser Ile Leu Phe

85 90 95

Ile Asp Ser Ala Asn Asn Val Val Tyr Lys Gln Tyr Glu Asp Met Val

100 105 110

Val Glu Ser Cys Gly Cys Arg

115

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<211> 114

<212> PRT

<213> Human

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<221> CHAIN

<222> (1) .. (114)

<223> Mature BMP-2

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<301> WANG, Elizabeth A.

WOZNEY, John M.

ROSEN, Vicki A.

<302> Novel osteoinductive compositions.

<310> WO 88/00205

<312> 1988-01-14

<313> 1 TO 114

<400> 2

Gln Ala Lys His Lys Gln Arg Lys Arg Leu Lys Ser Ser Cys Lys Arg

1

5

10

15

His Pro Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp Trp Ile

20

25

30

Val Ala Pro Pro Gly Tyr His Ala Phe Tyr Cys His Gly Glu Cys Pro

35

40

45

Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Ile Val Gln

50

55

60

Thr Leu Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala Cys Cys Val

65

70

75

80

Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu

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Lys Val Val Leu Lys Asn Tyr Gln Asp Met Val Val Glu Gly Cys Gly

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105

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Cys Arg

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<222> (1)..(116)

<223> Mature BMP-4

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<301> WOZNEY, John M.

ROSEN, Vicki

CELESTE, Anthony J.

MITSOCK, Lisa M.

WHITTERS, Matthew J.

KRIZ, Ronald W.

HEWICK, Rodney M.

WANG, Elizabeth A.

<302> Novel regulators of bone formation : molecular clones
and activities.

<303> Science

<304> 242

<305> 4885

<306> 1528-1534

<307> 1988-12-16

<308> Genbank/M22490

<313> 1 TO 116

<400> 3

Ser Pro Lys His His Ser Gln Arg Ala Arg Lys Lys Asn Lys Asn Cys

1

5

10

15

Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp

20

25

30

Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly Asp

35

40

45

WO 00/21998

5

Cys Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Ile
 50 55 60

Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile Pro Lys Ala Cys
 65 70 75 80

Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu
 85 90 95

Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly
 100 105 110

Cys Gly Cys Arg
 115

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<222> (1) .. (139)

<223> Mature BMP-7

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<301> OZKAYNAK, Engin

RUEGER, David C.

DRIER, Eric A.

CORBETT, Clare

RIDGE, Richard J.

SAMPATH, Kuber T.

OPPERMANN, Hermann

<302> OP-1 cDNA encodes an osteogenic protein in the TGF-beta family.

WO 00/21998

6

<303> EMBO J.

<304> 9

<305> 7

<306> 2085-2093

<307> 1990

<308> EMBL data library/X51801

<313> 1 TO 139

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Ser Thr Gly Ser Lys Gln Arg Ser Gln Asn Arg Ser Lys Thr Pro Lys
 1 5 10 15

Asn Gln Glu Ala Leu Arg Met Ala Asn Val Ala Glu Asn Ser Ser Ser
 20 25 30

Asp Gln Arg Gln Ala Cys Lys Lys His Glu Leu Tyr Val Ser Phe Arg
 35 40 45

Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala Pro Glu Gly Tyr Ala Ala
 50 55 60

Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro Leu Asn Ser Tyr Met Asn
 65 70 75 80

Ala Thr Asn His Ala Ile Val Gln Thr Leu Val His Phe Ile Asn Pro
 85 90 95

Glu Thr Val Pro Lys Pro Cys Cys Ala Pro Thr Gln Leu Asn Ala Ile
 100 105 110

Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn Val Ile Leu Lys Lys Tyr
 115 120 125

Arg Asn Met Val Val Arg Ala Cys Gly Cys His
 130 135

WO 00/21998

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<210> 5

<211> 119

<212> PRT

<213> Human

<220>

<221> CHAIN

<222> (1)..(119)

<223> Mature MP52 protein. Note : 30th, 71st, 74th and
111th Met are modified to Met sulfoxide.

<400> 5

Pro Ser Ala Thr Arg Gln Gly Lys Arg Pro Ser Lys Asn Leu Lys Ala
1 5 10 15

Arg Cys Ser Arg Lys Ala Leu His Val Asn Phe Lys Asp Met Gly Trp
20 25 30

Asp Asp Trp Ile Ile Ala Pro Leu Glu Tyr Glu Ala Phe His Cys Glu
35 40 45

Gly Leu Cys Glu Phe Pro Leu Arg Ser His Leu Glu Pro Thr Asn His
50 55 60

Ala Val Ile Gln Thr Leu Met Asn Ser Met Asp Pro Glu Ser Thr Pro
65 70 75 80

Pro Thr Cys Cys Val Pro Thr Arg Leu Ser Pro Ile Ser Ile Leu Phe
85 90 95

Ile Asp Ser Ala Asn Asn Val Val Tyr Lys Gln Tyr Glu Asp Met Val
100 105 110

Val Glu Ser Cys Gly Cys Arg
115

WO 00/21998

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<210> 6

<211> 119

<212> PRT

<213> Human

<220>

<221> CHAIN

<222> (1) .. (119)

<223> Mature MP52 protein. Note : 30th and/or 71st
and/or 74th and/or 111th Met are modified to
s-carboxymethyl Met.

<400> 6

Pro Ser Ala Thr Arg Gln Gly Lys Arg Pro Ser Lys Asn Leu Lys Ala
1 5 10 15

Arg Cys Ser Arg Lys Ala Leu His Val Asn Phe Lys Asp Met Gly Trp
20 25 30

Asp Asp Trp Ile Ile Ala Pro Leu Glu Tyr Glu Ala Phe His Cys Glu
35 40 45

Gly Leu Cys Glu Phe Pro Leu Arg Ser His Leu Glu Pro Thr Asn His
50 55 60

Ala Val Ile Gln Thr Leu Met Asn Ser Met Asp Pro Glu Ser Thr Pro
65 70 75 80

Pro Thr Cys Cys Val Pro Thr Arg Leu Ser Pro Ile Ser Ile Leu Phe
85 90 95

Ile Asp Ser Ala Asn Asn Val Val Tyr Lys Gln Tyr Glu Asp Met Val
100 105 110

Val Glu Ser Cys Gly Cys Arg
115

<210> 7

<211> 119

<212> PRT

<213> Human

<220>

<221> CHAIN

<222> (1) .. (119)

<223> Mature MP52 protein. Note : 32nd and 35th Trp are
modified to allylsulphenyl Trp.

<400> 7

Pro Ser Ala Thr Arg Gln Gly Lys Arg Pro Ser Lys Asn Leu Lys Ala
1 5 10 15

Arg Cys Ser Arg Lys Ala Leu His Val Asn Phe Lys Asp Met Gly Trp
20 25 30

Asp Asp Trp Ile Ile Ala Pro Leu Glu Tyr Glu Ala Phe His Cys Glu
35 40 45

Gly Leu Cys Glu Phe Pro Leu Arg Ser His Leu Glu Pro Thr Asn His
50 55 60

Ala Val Ile Gln Thr Leu Met Asn Ser Met Asp Pro Glu Ser Thr Pro
65 70 75 80

Pro Thr Cys Cys Val Pro Thr Arg Leu Ser Pro Ile Ser Ile Leu Phe
85 90 95

Ile Asp Ser Ala Asn Asn Val Val Tyr Lys Gln Tyr Glu Asp Met Val
100 105 110

Val Glu Ser Cys Gly Cys Arg
115